CEILING SYSTEMS
[Between us, ideas become reality.™]

Sales Bulletin: 2004-40 May 11, 2004

i ceilings®

AV INTEGRATOR CUSTOMER BULLETIN

CHECK OUT OUR NEW & IMPROVED WEBSITE WITH MORE SALES & TECHNICAL TOOLS!

Q. Do you need electronic access to detailed i-ceilings product information?
Q: Are you interested in learning more about how to apply Armstrong electronics?
Q. Is education is a key market for your firm?
A. If you answered ***YES***, check out what is new at **www.i-ceilings.com**

Now available on the web are individual product information pages that include printer-friendly technical specifications, guide specs, installation manuals, links to ceiling patterns, item numbers, ordering information, and more.

- → Look for the **A2001/D2001/D4100 Electronics Installation Manual** on the Multi-Zone page – updated with a new section on setting up & tuning sound masking systems.
- → Review the new **Application Notes** that describe how to solve installation challenges or take advantage of unique features of our products.
- → See the **NEW Case Study** on Mountainview High School, featuring a 300-speaker installation of the ESSENTIALS model.
- → Other case studies are also available electronically, along with a photo gallery and testimonials from a variety of i-ceilings jobs. Check out the attached flyer for a sneak peak at the revised Website and key highlights.

Also enclosed are copies of the first two App Notes, the Mountainview case study, and an updated Sales Aid Order Form to receive hard copies of marketing literature from Armstrong. Take advantage of these cooperative marketing pieces to get more business for your firm.

Please give us your feedback to the new website and tools anytime at: sarhoades@armstrong.com or bpotechline@armstrong.com.

Armstrong World Industries, Inc.
P.O. Box 3001 Lancaster, Pennsylvania 17604
T: [717] 397-0611

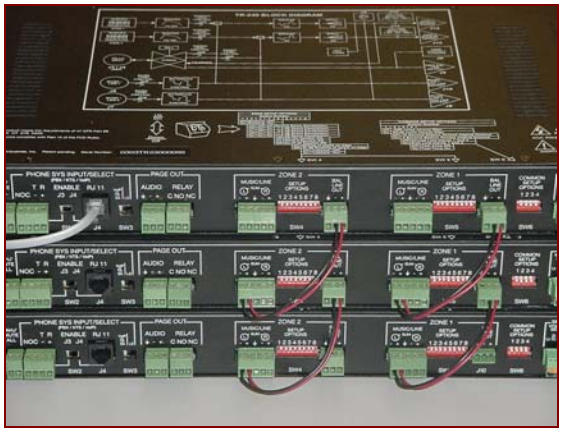
Armstrong

From Sean Browne, Electronics Scientist

AN-1103

Cascading the TRI-PAK™ TR-230

The TRI-PAK TR-230 has two 30W channels for music, paging, and sound masking. The robust paging interface accepts paging signals from a PBX, Centrex, VoIP, standard telephone, and line level microphone and can route the page to either of the two channels or both (all-call). This paging interface can also be used to drive additional TR-230s, processors, or amplifiers.



If more than a single TR-230 is needed for an installation, the paging can be cascaded to many TR-230s through each zone's balanced line output. Simply connect the balanced line output of one TR-230 to the line input of the next. Paging zone 1 (by pressing ***1***) will output the zone 1 of each processor in the cascade. Paging zone 2 (by pressing ***2***) will output to the zone 2 of each processor in the cascade. An all-call page (by pressing ***3***) will output to every zone in the cascade.

Note: The Page Volume on the primary TR-230 will control the page output level. The Music Volume will control the level that is output from the secondary TR-230s.

The paging interface of the TR-230 can also be used to drive the D2001 processor by using the Page Out connections. The TR-230 will convert the incoming page signal to a dry loop output (line level audio and contact closure).

Connect the Page Out Audio (J5) terminal block of the TR-230 to the Telco input of the D2001 (J10). Connect the Page Out Relay (J6) of the TR-230 to the contact input of the D2001 (J11) matching the **C** and **NO** connections of the TR-230 with the **C** and **+** connections of the D2001.

One of the TR-230 zones will need to be reserved as the gateway to the D2001 and it is not recommended to use masking or music on this dedicated TR-230 zone. For example, if Zone 1 is reserved for this paging expansion: turn all pots down, turn masking off, and make connections. To page the D2001 make a page to the TR-230 (or lift the receiver if in Loop Start) and press ***1*** to access the secondary processor. After the confirmation tone, page the D2001 using the appropriate dial plan.

Note: DTMF will not be routed to the secondary device until after the confirmation tone and no additional confirmation tones will be heard after the D2001 dial plan is entered.

From Sean Browne, Electronics Scientist

AN-0304

Telco-Based Remote Control of A/D2001 Processor

The output level of any output zone of the A2001 or D2001 processor(s) can be remotely boosted or attenuated through the Telco input. Accessing this function can be done from any location that a page can be sent and is available to all 100 zones when processors are linked together through the OPX feature of the processor.

Please Note: The output level of all applications in the output zone will be affected. For example, if you have music, paging and sound masking on the same output zone, this feature will boost or attenuate the master level affecting all signals in that zone. In an example like this, an alternative option is to set up the masking, music and paging on individual zones in order to be able to control the levels separately for each application.

Setup:

1. Set up Telco paging system (Installation Manual p. 9)
2. Log into A2-D2 GUI
3. Select "Set Remote Control Password" ***(Figure 1)***
4. Choose a unique 4-digit password for the processor you are connected to; then, confirm password
5. Wire processor(s) in "dry loop" fashion using J10 for Telco audio and J11 for contact closure ***(Figure 2)***

Operation: (Important: allow at least ½ second between each key)

1. Access processor(s) through Telco page
2. After confirmation tones, dial "∗" followed by the unique 4-digit password for that processor
3. Dial 1 through 8 for the output zone you wish to raise or lower:

Zone	A1	A2	B1	B2	C1	C2	D1	D2
Code	1	2	3	4	5	6	7	8

4. Dial 4 to reduce volume (~ 2dB per increment) or 6 to raise volume (~ 2dB per increment)
5. Dial # and the zone number to control a new zone
6. When finished, hang up

Example: With Remote Control Password set to "5555", raise the output level of zone C1 and lower the output level of zone D2

- access processor through Telco page
- allowing at least ½ second between each key, dial "∗5555"
- dial "5" to access zone C1
- dial "6" to raise the output level (repeat as necessary)
- dial "#8" to access zone D2
- dial "4" to lower the output level (repeat as necessary)
- hang up

Figure 1: A2-D2 GUI Remote Password

Note: a multiple processor installation will require a unique password for each processor

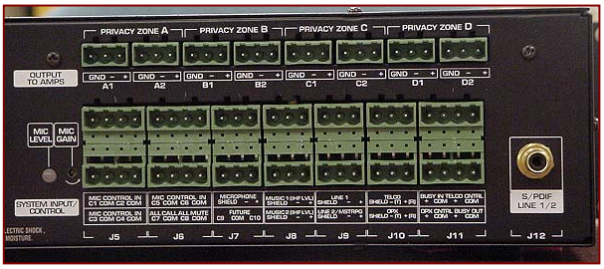


Figure 2: A2001 Rear Panel

Armstrong

case study

UNIQUE CEILING SYSTEM IN IDAHO HIGH SCHOOL FEATURES PUBLIC ADDRESS SPEAKERS THAT ARE HEARD BUT NOT SEEN

Flat Speaker Panels Look Just Like Traditional Ceiling Panels; Provide Improved Aesthetics as well as More Uniform Coverage

Contrary to an old adage about being seen, but not heard, school officials at the Meridian Joint School District in Idaho preferred that the hundreds of speakers located throughout their new high school be heard, but not seen.

As a result, they decided to install a unique ceiling system in which the speakers are flat panels that look like traditional acoustical ceiling panels and are placed in the grid system just like ordinary ceiling panels.

The decision has resulted in a ceiling that is more visually pleasing and a public address/paging system that is faster and easier to install and service and has more uniform coverage throughout the facility than conventional cone-type speakers.

Flat Speaker Panels Replaced Cone Speakers

Located in Boise, Idaho, the Meridian Joint School District recently completed construction of Mountain View High School. Opened in August, 2003, it is one of the largest high schools in the state in terms of size (200,000 square feet) and enrollment (1,800 students).

One of the more unique features of the two-story school is a sound system that provides public address announcements, paging, security alerts and bells by way of speakers that are “invisible” because they blend in with the overall ceiling.

More than 300 Armstrong i-ceilings® speaker panels provide public address announcements, paging, security alerts and bells at Mountain View High School.

According to Alan Donnelly, a design consultant with Aatronics, the Boise-based systems integration company responsible for the design, installation and service of the sound system in the school, the original specifications called for the installation of conventional 8-inch-round cone speakers.

However, after examining the benefits of a new sound system from Armstrong called i-ceilings® that features 2'x 2' flat speakers, Donnelly recommended a change to the new speakers, which was accepted by the school district and its architectural firm, Hummel Architects, PLC. A total of 343 i-ceilings speaker panels were then installed in place of cone speakers throughout the school, including classrooms, corridors, cafeterias and the “Commons” area.

Flat Speaker Panels Faster to Install, Service

The i-ceilings “Essentials” series of speakers were chosen for use in the school. Specifically designed to provide economical paging and background music in a variety of applications, the speakers include built-in 25-volt connections, which are required for the intercom systems used in most educational facilities.

“The use of i-ceilings added a little more cost in terms of materials, but saved quite a bit in terms of installation,” Donnelly explains. “With conventional cone speakers, we have to remove a ceiling tile, cut a hole in it, and then assemble four components to secure it to the tile. This is in addition to the wiring connections. With i-ceilings speaker panels, we simply make two connections on the back of the panel, tap it at the required wattage and lay it in the ceiling grid like a normal ceiling panel.”

Armstrong

According to Donnelly, the i-ceilings speaker panels are about 20 percent faster to install than conventional cone speakers. Rick Halsteen, the Aatronics project manager on the Mountain View job, notes that they are also faster to service.

"The serviceability benefit is great, far better than cone speakers," he states. "For example, after the school opened and was occupied by students and teachers, we went back to re-balance the system to meet everyone's needs, and were able to complete the job in one afternoon because the process is so easy. All we had to do was pop the panel up, make the change, and set it back in the grid. It would have taken much longer with standard cone speakers."

Speaker Panels Look Like Ceiling Panels

From an aesthetic point of view, i-ceilings speaker panels look just like standard acoustical ceiling panels and coordinate with many popular Armstrong ceiling patterns. As a result, they blend in with the ceiling, making the space more visually pleasing.

According to Ed Daniels, an associate architect with Hummel Architects in Boise, this is an important feature. "The combination of HVAC registers, lighting fixtures, fire sprinklers and speakers can often clutter up a ceiling," he states. "The ability to eliminate one piece of equipment from that mix, such as speaker grills, helps improve the overall look of the ceiling."

Two different Armstrong acoustical ceilings were used at Mountain View, both of which coordinate with the speaker panels. Fine Fissured ceiling panels, which feature a medium textured look, were used in the classrooms and corridors, while Dune™ ceiling panels, which have a more upscale, fine textured visual, were used in the cafeteria, lobbies and Commons area of the school.

Donnelly notes that the ability of the speaker panels to blend in with the ceiling is evidenced by the numerous people touring the facility who hear pages and ask where the speakers are.

Flat Speakers Provide More Uniform Coverage

He also notes that because the speaker panel's flat design radiates sound downward in an omni-directional pattern, it provides more uniform coverage than cone speakers. "It provides a nice, even coverage throughout the space," he says. "This results in a softer paging 'feel' compared to more focused conventional types of speakers."

Donnelly is also impressed with the speakers' sound performance. "It's not unusual for a few hundred students to be present in the Commons area at any given time. Yet, paging and bells can easily be heard over the noise of the crowd."

Architect Daniels agrees. "Both we and the school district are quite pleased with the acoustic performance of the system," he states. "We especially like the fact that the sound is much more widely dispersed compared to the speakers that would traditionally be installed in an application like this."

Daniels also notes that this was his first experience with i-ceilings Sound Systems. And, based on that experience, would use the system again. "We're totally satisfied with the system, and would definitely recommend it in future projects."

ceilings®

Sales Tools Order Instructions:

1. Complete this form. Be sure to fill out:
   - Requested quantity of each item
   - Shipping address and required delivery date

2. Fax the completed form to our Customer Focus Center, using the fax number below. You can also place your order by phone with an Armstrong customer representative, at the phone number below (prompts 1-1-3).

Telephone
1-877-ARMSTRONG, select options 1-1-3
(1-877-276-7876)

FAX Number:
1-800-233-5598

Armstrong will coordinate shipping upon receipt of your request. All sales tools except for the complete ceilings catalog are complimentary to our customers. You will be billed only for rush shipping charges, if applicable.

Literature – Sound Systems — ***Quantity:***

General:

CS-3417	16-page Sound Systems brochure	_____
CS-3423	Customer case study – Newcomb & Boyd	_____
CS-3446	Customer case study – Hortica Insurance	_____
CS-3489	Customer case study – Accenture	_____
CS-3555	Customer case study – Mountainview High School	_____

Non-Technical Product Data Pages -- for Architects & Owners:

CS-3450	All Speaker Panels (2 pages)	_____
CS-3458	All Electronics (2 pages)	_____

Technical Product Data Pages:

CS-3455	All Speaker Panels (4 pages)	_____
CS-3483	All Electronics (4 pages)	_____

Speech Privacy:

CS-3487	Article reprint: “FacilityCare Speaks with Dr. Ken Roy”	_____
CS-3488	HIPAA Flyer with Ad reprint: “Compliance”	_____
CS-3513	Rx for Healthcare Speech Privacy (8-page brochure)	_____
CS-3514	A Quiet Day at the Office (8-page brochure)	_____

Ad Reprints:

CS-3395	Intro spread: “Heard any good ceilings lately?”	_____
CS-3422	Sound contractor ad: “Everything you need... ” (stacks)	_____
CS-3488	HIPAA Flyer with Ad reprint: “Compliance”	_____
CS-3452	Building owner ad: “Productivity…Sound Business”	_____
CS-3481	Sound contractor TRI-PAK ad: “Good to go”	_____
CS-3482	Architect ad: “Faux Pas” (woman with speaker grille)	_____

(Up to 5 per customer)

Installation Manuals:

LA-295777	TRI-PAK TR-230	_____
LA-295778	TRI-PAK TS-110	_____

Quantity:
(By unit, 1 CD each)

Technical CD-ROM's – Software Programs

CS-3447	Masking & Privacy Index Tuning Tools	_____
CS-3469	Speaker Spacing and Layout Tool	_____
CS-3491	A2-D2 (v2.0) Graphic User Interface for A/D2001 Processors	_____

Sales/Marketing CD's

CS-3316 i -ceilings overview CD-ROM (2001) _____

- Covers both sound and wireless systems
- A great, non-technical tool to use with architects and owners!

Literature – Wireless Systems

General:

CS-3451	8-page Wireless Systems brochure	_____
CS-3420	Customer case study – Terrace Community School	_____

Data Pages & Sell Sheets:

CS-3281	Antenna panel data page	_____
CS-3284	Antenna sell sheet	_____
CS-3340	In-building wireless data system	_____

Wireless Ad Re-Print:

CS-3317	Man with laptop: "Technology is over their heads . . ."	_____

Other

CS-3000 Annual Ceilings Systems Catalog ** _____

- ☑ Has small, tabbed section on i-ceilings
- ☑ Good tool for consultants looking to specify Armstrong ceilings and sound systems

** Minimal charge per catalog ordered, in addition to shipping

---

Shipping Information: Please complete the following.

Name: _____ **Company:** _____
Ship to address: _____
_____
_____
_____

Required Delivery Date: _____
For rush orders only, please include your FedEx Account Number: _____
And recipient's phone number: _____

Fax the Completed Form to Your Customer Service Representative.